

C. W. LEVALLEY.  
CONVEYER.  
APPLICATION FILED NOV. 30, 1908.

936,917.

Patented Oct. 12, 1909.

3 SHEETS—SHEET 1.

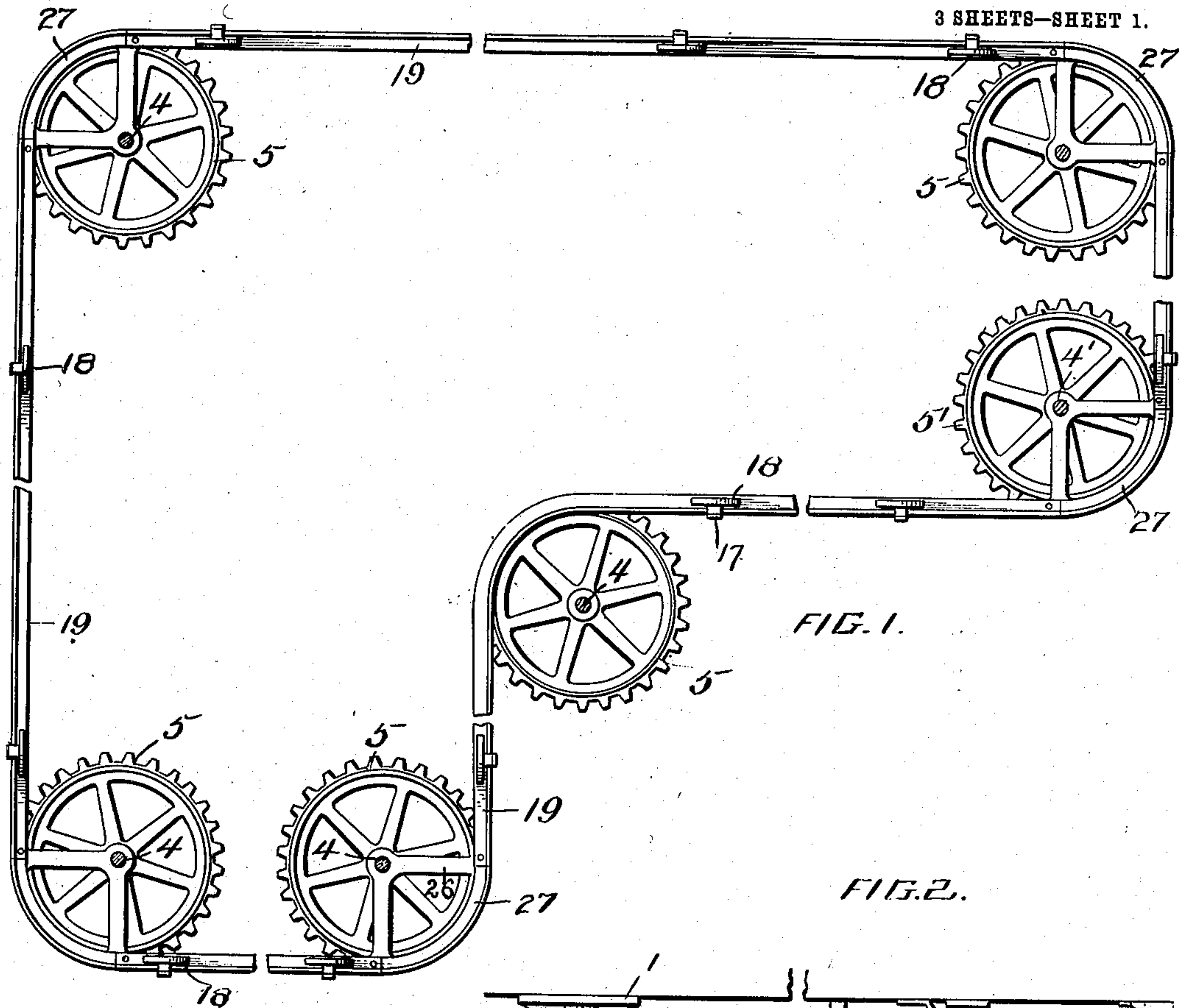


FIG. 1.

FIG. 2.

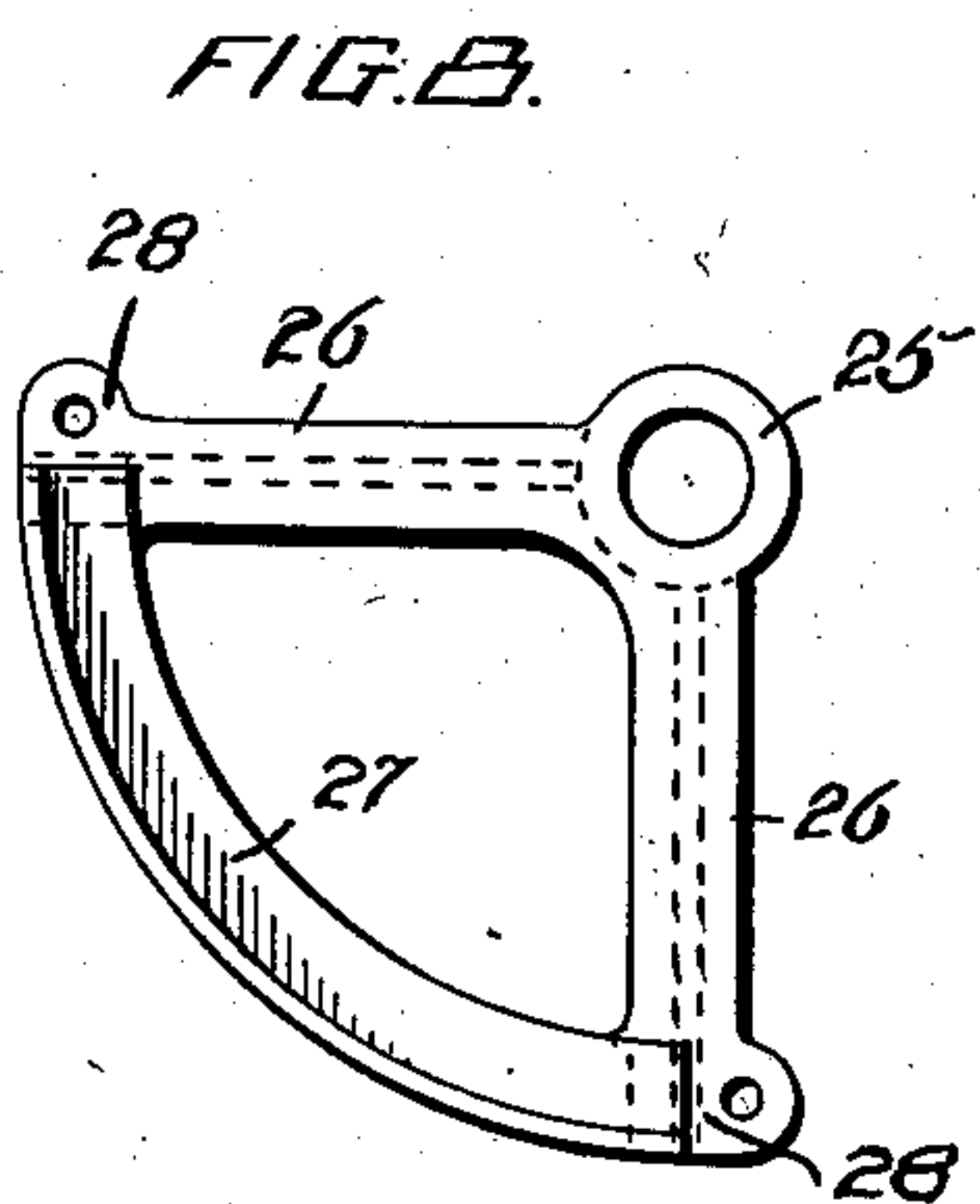
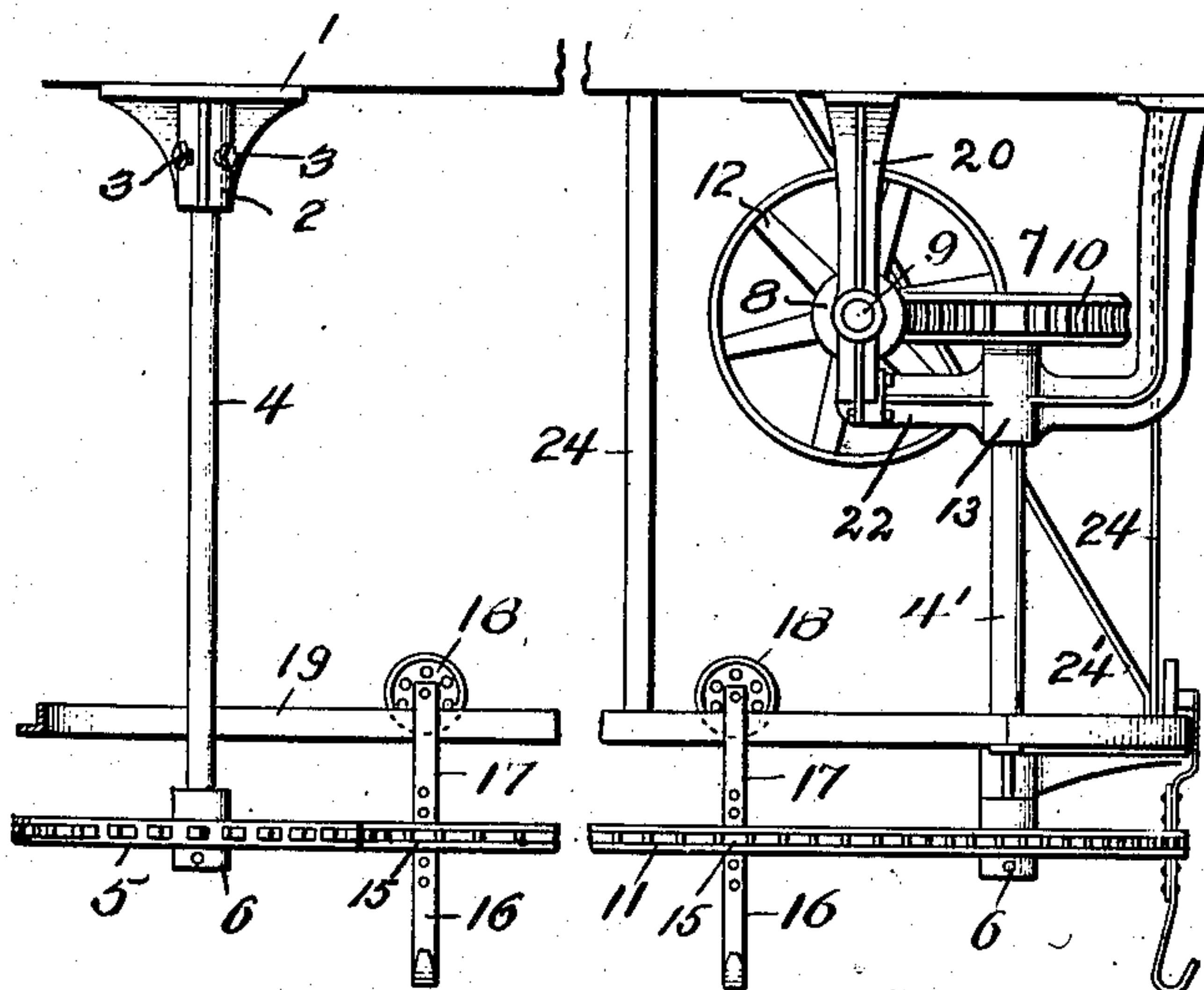


FIG. 2.



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3 SHEETS—SHEET 2.

FIG. 4.

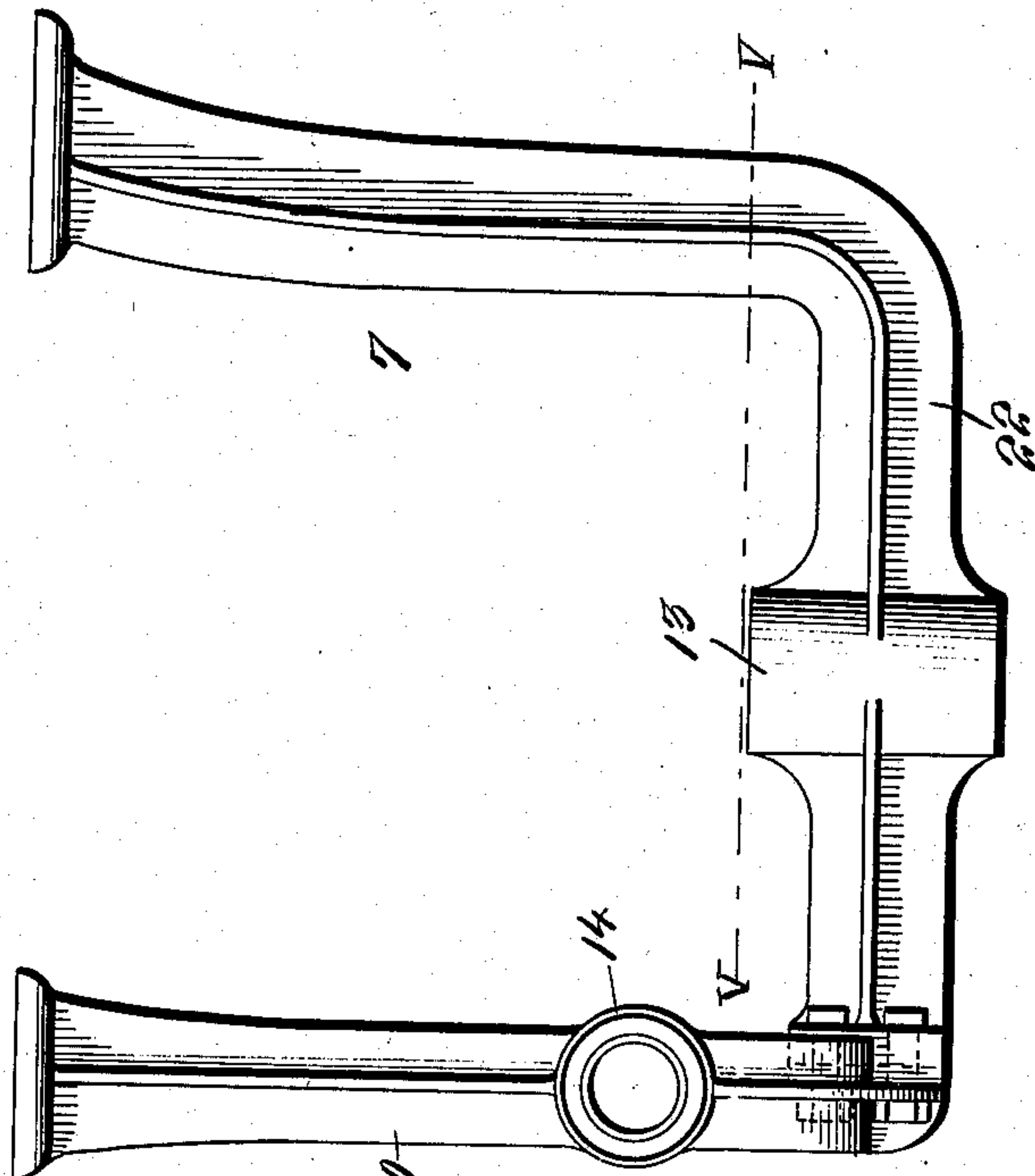


FIG. 3.

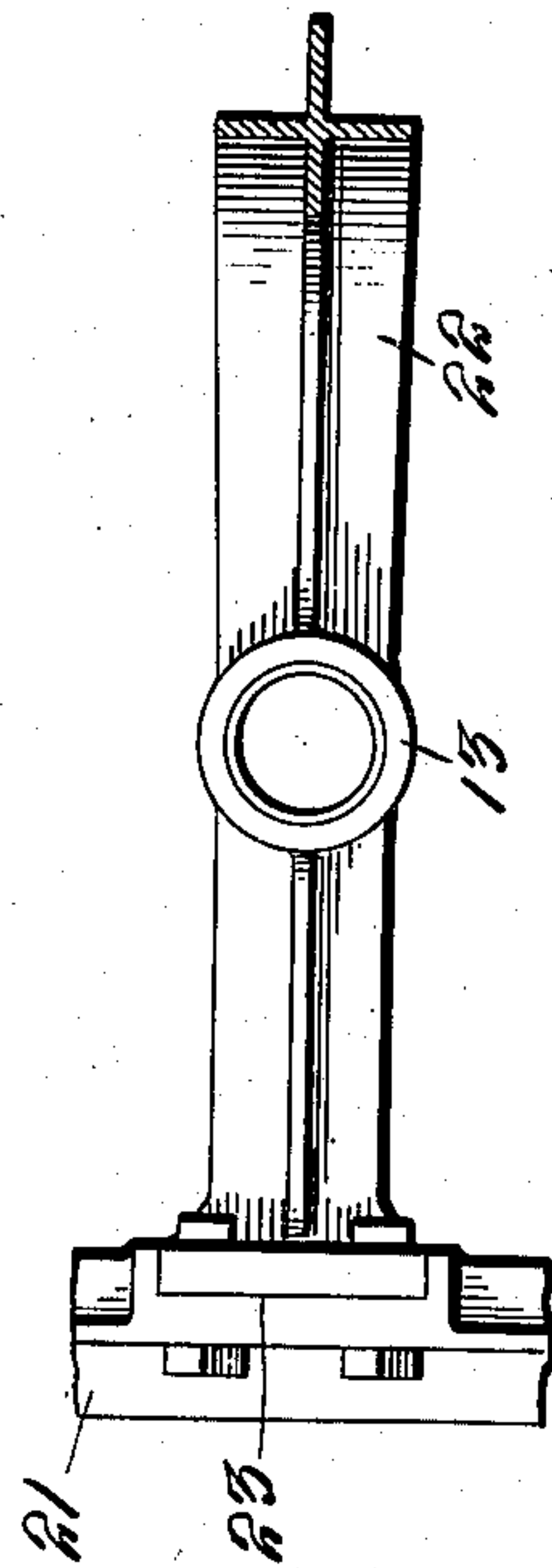
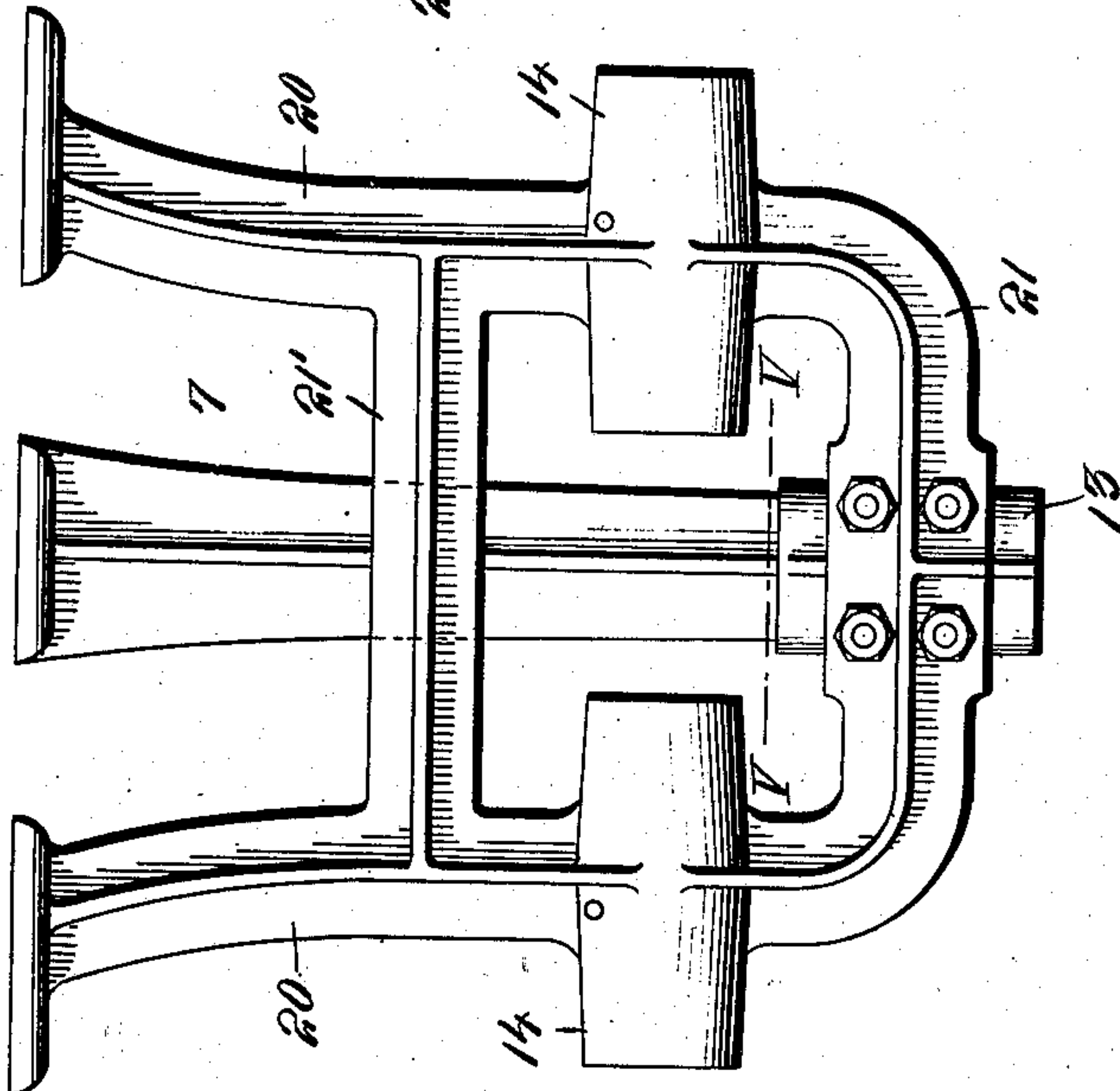


FIG. 5.

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3 SHEETS—SHEET 3.

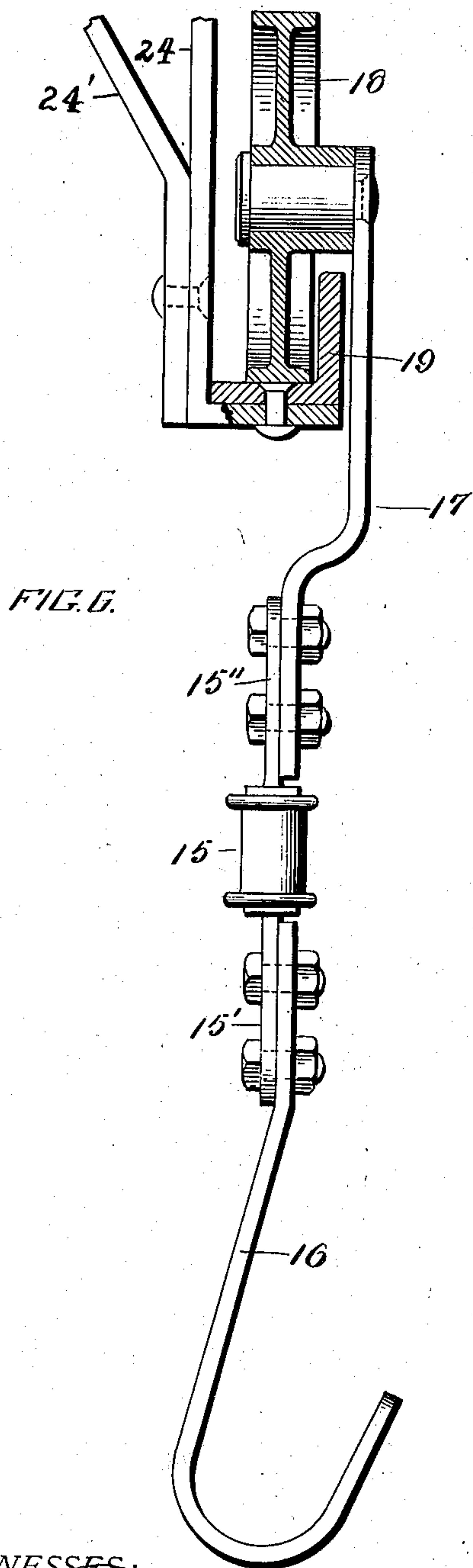


FIG. 6.

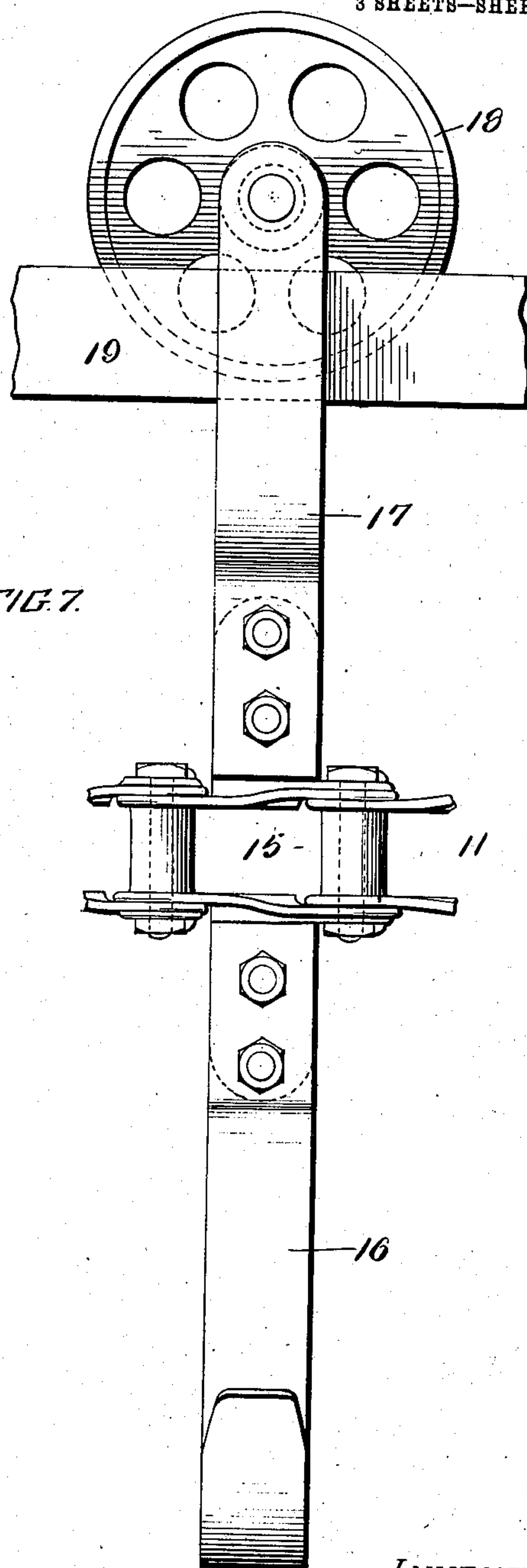


FIG. 7.

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# UNITED STATES PATENT OFFICE.

CHRISTOPHER W. LEVALLEY, OF MILWAUKEE, WISCONSIN.

CONVEYER.

936,917.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed November 30, 1908. Serial No. 465,262.

*To all whom it may concern:*

Be it known that I, CHRISTOPHER W. LEVALLEY, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in and Relating to Conveyers, of which the following is a specification.

My invention relates to conveyers, and particularly to that class of endless conveyers in which the moving parts are arranged to travel in a substantially horizontal plane, and where the articles to be transported are suspended therefrom; and it consists in the improvements that are hereinafter described and are illustrated in the drawings.

Figure 1 is a plan view of a conveyer embodying my invention, the supports for the conveyer being represented in section. Fig. 2 is an elevation of a part of the conveyer showing the driving mechanism. Fig. 3 is a front elevation of the bracket in which is supported the driving mechanism. Fig. 4 is a side elevation of the same bracket. Fig. 6 is an edge view, partly in section; and Fig. 7 is a side view, illustrating on a larger scale the trolley support that constitutes one element of the conveyer. Fig. 8 is a plan view of one of the curved track sections, detached.

While I have embodied my improvements in an overhead horizontally-moving endless chain conveyer, I do not wish to be understood as limiting my invention in its useful applications to the specific embodiment thereof delineated in the drawings, as there may be changes in positions and arrangements, and in the proportions and shapes of parts employed without departing from the spirit of the invention.

The conveyer shown consists essentially of an endless power-transmitting element, typified in the drawings illustrating the invention by a drive chain, supports for sustaining and guiding the chain, suspending means carried by the chain and arranged to carry the articles being transported, and a track adjacent to the chain and serving to sustain or guide and steady the loads being carried.

The chain 11, which constitutes the endless traveling element of the apparatus, is composed of a series of articulated and preferably easily detachable links. It may be of any preferred construction, but is preferably adapted to have either of its faces engage with the supporting sprocket wheels 5.

These wheels are horizontally disposed and are supported at the lower ends of stationary shafts 4, being held thereon by set collars 6 or other means. The shafts 4 are supported in bearings or sockets 2 formed with or carried by the attaching plates 1, being securely held therein by the set screws 3. This method of supporting the sprocket wheels permits of their being easily adjusted either up or down in order that the several wheels may lie in a common horizontal plane. This is often desirable where the ceiling or other base support upon which the conveyer as a whole is supported does not lie in a uniform plane.

One of the sprocket wheels, that designated 5', operates as the driver for the moving parts of the conveyer. It is secured fast to its shaft 4', which latter is mounted in a bracket 7. To the upper end of the shaft 4' is secured the worm wheel 10 with which meshes a worm 8 on the shaft 9, which in turn is provided with fast and loose pulleys 12 arranged to receive a belt by means of which they may be connected with any suitable motor or source of power.

The bracket 7 is of special construction and comprises a vertically disposed bearing 13 for the shaft 4', the horizontally disposed bearing 14 for the shaft 9, and suitable attaching legs arranged to afford a firm support for the bracket and the parts mounted therein. For strength, simplicity of construction and ease of manufacture and erection, I prefer to make the bracket 7 of two parts and of tripod form. The part in which the bearing 13 is formed has a single leg and is of substantially L-shape. The bearing 14 for the shaft 9 is preferably divided, one part being carried by each of the legs 20 of the second part of the hanger or bracket, as indicated in Figs. 3 and 4. The legs 20 are connected and braced by the lower cross piece 21 and the intermediate cross piece 21'. The two parts of the hanger are united by bolts, the outer end of the horizontal member 22 of the part in which is formed the bearing 13 being arranged to fit a bearing, preferably of recess or socket-like construction, such as indicated at 23, formed on the inner face of the lower cross member 21 of the part of the bracket or hanger carrying the bearing or bearings 14. It will thus be seen that the hanger is formed of two relatively flat parts arranged at right angles to each other, mak-



ing it comparatively easy to cast the parts and also facilitating their storage for transportation, as when separated they can be so placed as to take but very little space.

5 At suitable distances apart throughout the length of the chain I arrange special links 15 the side bars of which are provided with oppositely extending wings or attachments 15' 15''. These wings are preferably made  
10 integral with the side bars of the link and are so arranged as not to interfere with the articulations of the chain or its free movement past the wheels 5 whether one side or face of the chain or the other engages there-  
15 with, for it is apparent from an examination of Fig. 1 that the wheels may be arranged to engage with the inner face of the chain, that is, that face that is within the loop formed by the endless conveyer as a whole,  
20 or with the outer face of the chain. To the lower attachment or wing 15' I secure a hook or other carrier 16. I have chosen a hook as a type of means that may be employed for supporting the articles during  
25 transit, but I do not wish to be limited to this particular kind of support.

To the wing or attachment 15'' of each special link is secured a suspension bar 17 that extends upwardly a suitable distance  
30 and has mounted at its upper end a trolley wheel 18 loosely mounted on a suitable axle provided therefor. This trolley wheel is arranged to travel along a track 19 that follows the course of the conveyer. The  
35 track is preferably formed of angle iron supported to constitute a horizontal track or way for the trolley wheels and an upwardly extending flange that is between the wheel and the suspension bar, and serves both to  
40 guide the wheel and prevent it from running off the track, even though the conveyer should be violently agitated by reason of the loading or unloading processes or other causes. Those parts of the track 19  
45 that are arranged between the wheels 5 are supported and braced by brackets or suspending bars 24 24'.

It will be apparent that the arrangement which I have described relieves the chain of  
50 the weight of the loads being transported, which are borne by the track on which the trolleys run, so that the chain is only called upon to propel or advance them.

In order to continue the track around the  
55 sprocket wheels, which are arranged at each turn of the conveyer, I have devised specially formed track sections, such as are illustrated in detail in Fig. 8. They are each supported upon one of the shafts for  
60 the wheels and consist of a hub portion 25 fitted to such shaft, radiating spokes or arms 26, and an arc-shaped flanged track 27. At the ends of the arms 26 and adjacent to the ends of the curved track section 27 are  
65 formed seats 28 for the ends of the attached

portions of the straight track 19, the latter being secured in place by bolts or other suitable attaching means.

In order to impart a steady even motion to the conveyer and to the loads carried  
70 thereby, it is desirable that the chain or endless power transmitting belt should be disposed substantially midway between the trolley wheels 18 and the load supports or carriers 16; and it is also desirable that the  
75 chain should be in a vertical plane that passes through the tread of the trolley wheels and the points of suspension or support for the loads transmitted, this latter result being secured by bending or curving  
80 the hooks 16 and the suspension bars 17, as clearly indicated in Fig. 6.

What I claim is:

1. In a conveyer, the combination of an endless chain, wheels for supporting and  
85 guiding the same, and means for adjusting the wheels to bring them into a common plane, substantially as set forth.

2. In a conveyer, the combination of a chain arranged to travel in a substantially  
90 horizontal plane, wheels for guiding and supporting the same, and means for vertically adjusting the wheels in order to bring them into a common working plane, sub-  
95 stantially as set forth.

3. In a conveyer, the combination of an endless chain, sprocket wheels for support-  
100 ing and guiding the same, supports for the sprocket wheels, and means for adjusting the sprocket wheels relative to their sup-  
105 ports in order that they may all be brought to a common working plane, substantially as set forth.

4. In a conveyer, the combination of an endless chain arranged to move in a sub-  
105 stantially horizontal plane, wheels for supporting and guiding the same, vertical shafts upon which the wheels are mounted, and means for adjusting the wheels in a di-  
110 rection of their axes of rotation, whereby they may be brought to a common working plane, substantially as set forth.

5. In a conveyer, the combination of an endless chain arranged to travel in a sub-  
115 stantially horizontal plane, wheels for supporting and guiding the same, carriers for the material depending from the chain, trolleys carried by the chain and extending up-  
120 ward therefrom, and a track arranged above the chain and parallel thereto upon which the trolleys run, substantially as set forth.

6. In a conveyer, the combination of an endless chain arranged to move in a sub-  
125 stantially horizontal plane, wheels for supporting and guiding the same, a track arranged above the chain and substantially parallel thereto, carriers for the material de-  
130 pending from the chain, and trolleys arranged to run upon the track extending up-  
ward from the chain, the chain being thus



disposed between the carriers and the trolleys and being also arranged in the vertical planes including the points of contact between the trolley and the track and the carrier, substantially as set forth.

7. In a conveyer, the combination of an endless driven chain, a track above the same, trolleys extending upward from the chain arranged to run thereon, and carriers for the articles to be transported extending downward from the track, a trolley and a carrier being both connected with the same chain link, substantially as set forth.

8. In a conveyer, the combination of an endless driven chain, certain of the links of which are provided with oppositely extending wings or attachments, trolleys connected with the wings of such links that extend in one direction, and carriers for the material attached to the wings of such links that extend in the other direction, substantially as set forth.

9. In a conveyer, the combination of an endless driven chain arranged to travel in a substantially horizontal plane, carriers arranged at intervals along the chain, trolleys arranged at intervals along the chain and each consisting of an upward extending bar 17 and a wheel 18, and a track upon which the trolley wheels run, the track being provided with a flange arranged to extend upward between the wheels 18 and the bars 17, substantially as set forth.

10. In a conveyer, the combination of a chain arranged to travel in a substantially horizontal plane, wheels for guiding and supporting the same arranged at the places where the direction of the conveyer is changed, carriers connected with the chain, trolleys also connected therewith, and a track upon which the trolleys run, the track consisting of straight portions between the wheels and curved sections concentric with

the wheels for guiding the trolleys around the latter, substantially as set forth.

11. In a conveyer, the combination of a chain arranged to travel in a substantially horizontal plane, wheels for guiding and supporting the same arranged at places where the course of the conveyer is changed, vertical shafts upon which the wheels are supported, trolleys carried by the chain, straight tracks for the trolleys arranged between the wheels, and curved track sections supported by the supporting and guiding wheels for the chain and concentric with such wheels, interposed between the adjacent ends of the attaching straight track sections, substantially as set forth.

12. In a conveyer, the combination of an endless chain, wheels around which the chain runs, supporting trolleys for the chain, tracks upon which the trolleys run arranged between the wheels, and the curved track sections arranged adjacent to the wheels and each consisting of a hub portion 25, spokes 26 and the curved track 27 carried by the said spokes, substantially as set forth.

13. In a conveyer, the combination of an endless chain, the wheels for supporting and guiding the same, one of which operates as a driver for the conveyer, the shaft 4' on which such driving wheel is mounted, another shaft 9 arranged at right angles to the shaft 4' and connected therewith by gearing, and a bracket or hanger in which such shafts are supported, such bracket being of tripod construction and formed of two relatively flat parts in each of which is a bearing for one of the shafts, the parts being securely united, substantially as set forth.

CHRISTOPHER W. LEVALLEY.

Witnesses:

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